



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/073,600	02/11/2002	Mark T. Girard	AKI00004/US/2	9085

33072 7590 09/30/2004

KAGAN BINDER, PLLC
SUITE 200, MAPLE ISLAND BUILDING
221 MAIN STREET NORTH
STILLWATER, MN 55082

EXAMINER

KIM, PAUL D

ART UNIT PAPER NUMBER

3729

DATE MAILED: 09/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/073,600

Applicant(s)

GIRARD ET AL.

Examiner

Paul D Kim

Art Unit

3729

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 July 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7-10 and 12-14 is/are rejected.
- 7) ☒ Claim(s) 6 and 11 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

This office action is a response to the amendment filed on 7/19/2004.

Claim Rejections - 35 USC § 112

1. Claim 14 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 14 recites the limitation "the static attitude" in line 5. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1 and 12 are rejected under 35 U.S.C. 102(e) as being anticipated by Iwamoto (US PAT. 5,901,016).

Iwamoto teaches a process of making a disk drive suspension comprising steps of: attaching a head/slider (32) having at least one terminal pad to a an insulation layer (48) of a flexible circuit (42) having at least one electrical lead to produce a head/slider

Art Unit: 3729

circuiting a gimbal assembly having at least one static angle as shown in Fig. 1 (also see col. 3, lines 55-57); electrically connecting the at least one terminal pad of the head/slider to the at least one electrical lead of the flexible circuit also as shown in Fig. 1 (see also col. 3, lines 64-67); and attaching the head/slider circuiting gimbal assembly to a suspension (18) having at least one static angle as shown in Fig. 2 (see also col. 3, line 33 to col. 4, line 33).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 2 and 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iwamoto in view of Pan et al. (US PAT. 5,896,247).

Iwamoto teaches all of the limitations as set forth above. However, Iwamoto does not teach a process of determining the static angle of the head/slider circuiting gimbal assembly after electrically connecting the at least one terminal pad of the head/slider to the at least one electrical lead of the flexible circuit. Pan et al. teach a process of making a disk suspension including a process of determining the static angle (31a, 30b as shown in Fig. 2) of the head/slider circuiting gimbal assembly after electrically after electrically connecting the at least one terminal pad (36) of the head/slider (37) to the at least one electrical lead (32) of the flexible circuit (30) in order to achieve a tight flight

Art Unit: 3729

height tolerance (see also, col. 4, line 27 to col. 5, line 4). Therefore, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify a process of fabricating a disk drive suspension of Iwamoto by determining the static angle of the head/slider circuited gimbal assembly as taught by Pan et al. in order to achieve a tight flight height tolerance.

Pan et al. also teach an electrical test of the head/slider circuited gimbal assembly performed by flying the head/slider circuited gimbal assembly above a disk for controlling maintaining the optimal flying height of the slider as recited in claims 8 and 9 (see col. 1, lines 37-50). It would also be obvious to modify a process of fabricating a disk drive suspension of Iwamoto by an electrical test of the head/slider circuited gimbal assembly as taught by Pan et al. for controlling maintaining the optimal flying height of the slider.

Pan et al. also teach forming and determining an offset closer to the head/slider circuited gimbal assembly, then the PSA (pitch static attitude) is more sensitive and has a wider range (see also, col. 5, line 60 to col. 6, line 19) as recited in claim 10. It would also be obvious to modify a process of fabricating a disk drive suspension of Iwamoto by determining an offset of the head/slider circuited gimbal assembly as taught by Pan et al. for improving PSA in sensitivity and wide range.

6. Claims 3-5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iwamoto in view of Pan et al., and further in view of Schudel (US PAT. 5,588,200).

Iwamoto, modified by Pan et al., teaches all of the limitations as set forth above. Pan et al. also teach an electrical test of the head/slider circuited gimbal assembly

Art Unit: 3729

performed by flying the head/slider circuited gimbal assembly above a disk (see col. 1, lines 37-50) for controlling maintaining the optimal flying height of the slider and forming an offset closer to the head/slider circuited gimbal assembly, then the PSA (pitch static attitude) is more sensitive and has a wider range (see also, col. 5, line 60 to col. 6, line 19) as recited in claims 4 and 5.

However, Iwamoto, modified by Pan et al., does not teach a process of determining the static angle of the suspension prior to the process of attaching the head/slider circuited gimbal assembly to the suspension as recited in claim 3 and 7. Schudel teaches a process of a magnetic head suspension assembly including a process of determining the static angle of the suspension prior to the process of attaching the head/slider circuited gimbal assembly to the suspension as shown in Fig. 6 for avoiding affecting a critical gram load or a resonance performance characteristics of the suspension (see also, col. 4, line 67 to col. 5, line 12). Therefore, it would also have been obvious at the time the invention was made to a person having ordinary skill in the art to have provided a process of fabricating a disk drive suspension of Iwamoto, modified by Pan et al., by determining the static angle of the suspension prior to the process of attaching the head/slider circuited gimbal assembly to the suspension as taught by Schudel for the purpose of avoiding affecting a critical gram load or a resonance performance characteristics of the suspension.

7. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Iwamoto in view of Schudel (US PAT. 5,588,200).

Iwamoto teaches all of the limitations as set forth above. However, Iwamoto does not teach a process of determining the static angle of the suspension prior to the process of attaching the head/slider circuited gimbal assembly to the suspension as recited in claim 3 and 7. Schudel teaches a process of a magnetic head suspension assembly including a process of determining the static angle of the suspension prior to the process of attaching the head/slider circuited gimbal assembly to the suspension as shown in Fig. 6 for avoiding affecting a critical gram load or a resonance performance characteristics of the suspension (see also, col. 4, line 67 to col. 5, line 12). Therefore, it would also have been obvious at the time the invention was made to a person having ordinary skill in the art to have provided a process of fabricating a disk drive suspension of Iwamoto by determining the static angle of the suspension prior to the process of attaching the head/slider circuited gimbal assembly to the suspension as taught by Schudel for the purpose of avoiding affecting a critical gram load or a resonance performance characteristics of the suspension.

8. Claim 14 is, as best understood in view of the rejections under 112 second paragraphs, rejected under 35 U.S.C. 103(a) as being unpatentable over Iwamoto in view of Schudel, and further in view of Pan et al. (US PAT. 5,896,247).

Iwamoto, modified by Schudel, teaches all of the limitations as set forth above. However, Iwamoto, modified by Schudel, does not teach a process of determining the static angle of the head/slider circuited gimbal assembly after electrically connecting the at least one terminal pad of the head/slider to the at least one electrical lead of the flexible circuit. Pan et al. teach a process of making a disk suspension including a

Art Unit: 3729

process of determining the static angle (31a, 30b as shown in Fig. 2) of the head/slider circuited gimbal assembly after electrically after electrically connecting the at least one terminal pad (36) of the head/slider (37) to the at least one electrical lead (32) of the flexible circuit (30) in order to achieve a tight flight height tolerance (see also, col. 4, line 27 to col. 5, line 4). Therefore, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify a process of fabricating a disk drive suspension of Iwamoto, modified by Schudel, by determining the static angle of the head/slider circuited gimbal assembly as taught by Pan et al. in order to achieve a tight flight height tolerance.

Allowable Subject Matter

9. Claims 6 and 11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

10. Applicant's arguments with respect to claims 1-14 have been considered but are moot in view of the new ground of rejection. Rejections are based on the newly submitted claims 12-14.

11. Applicant's arguments filed 7/16/2004 have been fully considered but they are not persuasive. Applicant argues that the prior art of record fails to disclose the claimed invention such as a sequence of assembly. Examiner traverses the argument that there

Art Unit: 3729

is no such a specific sequential method. For example, the process of attaching the head/slider circuited gimbal assembly to the suspension can be performed prior to the process of electrically connecting the head/slider to the flexible circuit. Accordingly, the head/slider of Iwamoto is attached to the flexible circuit and electrically connected by conductive leads to form the head/slider circuited gimbal assembly as shown in Fig. 1, and the head/slider circuited gimbal assembly is attached to the suspension as shown in Fig. 2.

Conclusion

12. Applicant's amendment necessitated the new ground of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

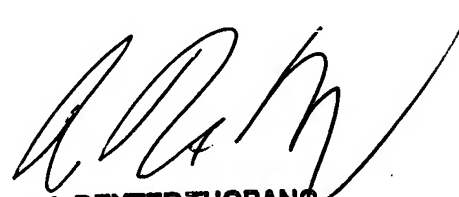
Art Unit: 3729

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul D Kim whose telephone number is 703-308-8356. The examiner can normally be reached on Tuesday-Friday between 8:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Vo can be reached on 703-308-1789. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

pdk



A. DEXTER TUGBANG
PRIMARY EXAMINER